Notes from review of Trial Burn Plan 6/88

Mode based Conditions

- Conditions set for each mode of operation based on Trial burn data point that applies to that mode
- Permit Conditions that can be set for all modes of operation base on the single worst-case trial burn data point
- Permit conditions that are independent of the Trial burn.

Permit conditions that be set for all modes of operation and are based on single worst case point that are weakly dependent or independent of other parameters.

Minimum Temp VS max flowrate

Worst with low Heating Value max feedrate min temp.

High or medium Heating Value waste cannot maximize feedrate and minimize temperature.

Low Heating Value 5000 Btu/lb high moisture
1000 Btu/lb high ash

- Aux. Fuel only at start up or disruption of waste flow

T = 950° → 1150° C

Stack Vel = 12 ft/sec max

Typical waste flow 650 lbs/hour

500 CAC 150 AZO → 9634.4 Btu/lb

1st - CAC and AZO wastes
By weight 3.33 to 1.0

2nd 1000 lb/hr CAC → 7,500 Btu/lb

high rate low Btu Waste

~~- Maximum feedrate at minimum Temp~~

3rd 1000 lbs/hr CAC 250 AZO 9349.8

- Reccommend that 3rd run be minimum Temperature run.

What is applicant anticipating in permit 3 modes of operation

Incineration is a combustion process, and complete combustion requires the presence of sufficient oxygen; hence, an argument could be made for setting minimum oxygen concentration as a permit limit. There are, however, overriding arguments against using oxygen as a permit parameter:

1. Insufficient oxygen results in a rise in CO concentration. Since CO is already a permit parameter, limiting oxygen as well would be redundant.
2. It is difficult to continuously and reliably measure oxygen concentration at combustion chamber exit conditions; thus oxygen measurements are normally made at the stack. Often air inleakage occurs between the combustion chamber exit and the stack. The oxygen in this leakage air can mask oxygen deficiencies in the combustion chamber thus limiting or negating the value of such measurements.
3. Several combustion chambers are disscussed to operate under oxygen-starved (pyrolytic) conditions with additional air supplied in downstream combustion equipment. Minimum oxygen requirements for these pyrolytic chambers would be inappropriate and unenforceable.

Ideally, a permit limit should be set on the minimum residence time in each combustion chamber; however, it is difficult to reliably measure gas volumetric flowrate, velocity or residence time at combustion chamber conditions. The maximum flue gas flowrate or velocity at the stack has been selected as a permit condition instead. Techniques for relating flue gas flowrate to combustion chamber flowrate or residence time are presented in Section 3.4.4.2.